

JP-A-5-70322

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(54) [Title of the Invention] EMULSION COSMETIC

(57) [Abstract]

[Constitution]

A water-in-oil type emulsion cosmetic characterized by comprising 0.1 to 10% by weight of a water-absorbing polymer and 1 to 20% by weight of a dimethylpolysiloxane represented by the following general formula (1):

[Chemical 1]

(1)

(wherein x represents a number of 4 to 500), and a water-in-oil type emulsion cosmetic characterized by further comprising an ultraviolet absorber.

[Effect]

The cosmetic of the invention does not give a frictional feeling upon application, reduces an uncomfortable feeling caused by sweating, and such an effect lasts long. In addition, by incorporating further an ultraviolet absorber therein, a cosmetic in which an ultraviolet protection effect lasts long can be provided.

[Claims]

[Claim 1]

A water-in-oil type emulsion cosmetic characterized by comprising 0.1 to 10% by weight of a water-absorbing polymer

and 1 to 20% by weight of a dimethylpolysiloxane represented by the following general formula (1):

[Chemical 1]

(1)

(wherein x represents a number of 4 to 500).

[Claim 2]

The water-in-oil type emulsion cosmetic according to claim 1, characterized by further comprising an ultraviolet absorber.

[Detailed Description of the Invention]

[0001]

[Industrial Field of Application]

The present invention relates to a cosmetic which does not give a frictional feeling upon application, reduces an uncomfortable feeling caused by sweating, and in which such an effect lasts long, and relates to a cosmetic in which by incorporating further an ultraviolet absorber therein, also an ultraviolet protection effect lasts long.

[0002]

[Prior Art]

Heretofore, as a cosmetic for reducing an uncomfortable feeling such as stickiness or clamminess caused by sweating, a baby powder, an antiperspirant deodorant spray or the like is used. In such a cosmetic, a clay mineral such as talc is generally blended for the purpose of imparting a smooth feeling

on the skin.

[0003]

Recently, various attempts have been made for suppressing stickiness right after spraying and after sweating and improving the usability. For example, as the clay mineral, talc with a plate-like crystal structure is blended, a substance obtained by ultrafine grinding of the talc is blended, a spherical powder is blended (JP-A-52-99236), a volatile silicone is blended in an oil component (JP-A-56-29912), talc in which the surface thereof is hydrophobized by a silicone treatment is blended (JP-A-62-164615), a water-absorbing polymer is blended (JP-A-54-46842 and JP-A-60-81120), etc.

[0004]

[Problems that the Invention is to Solve]

However, even by these improvement techniques, an effect of reducing an uncomfortable feeling such as stickiness caused by sweating has not yet been sufficient, and the persistence of the effect has not yet been satisfactory. Further, a product in which a water-absorbing polymer is blended had a problem that a frictional feeling upon application occurs. Thus, an object of the present invention is to provide an excellent cosmetic which has a high effect of suppressing an uncomfortable feeling caused by sweating, is excellent in the persistence of the effect, and does not give a frictional feeling.

[0005]

[Means for Solving the Problems]

In view of such circumstances, the present inventors made intensive studies, and as a result, they found that a water-in-oil type emulsion cosmetic in which a water-absorbing polymer and a specific dimethylpolysiloxane are incorporated in specific amounts persistently suppresses an uncomfortable feeling caused by sweating and does not give a frictional feeling, and thus the present invention has been completed. Further the present inventors found that by incorporating an ultraviolet absorber in the above cosmetic, the ultraviolet absorber does not flow off and a cosmetic in which an ultraviolet protection effect lasts long can be obtained, and thus the present invention has been completed.

[0006]

That is, the present invention provides a water-in-oil type emulsion cosmetic characterized by comprising 0.1 to 10% by weight of a water-absorbing polymer and 1 to 20% by weight of a dimethylpolysiloxane represented by the following general formula (1):

[0007]

[Chemical 2]

(1)

[0008]

(wherein x represents a number of 4 to 500). Further,

the present invention also provides a water-in-oil type emulsion cosmetic characterized by comprising 0.1 to 10% by weight of the above water-absorbing polymer, 1 to 20% by weight of the dimethylpolysiloxane (1) and an ultraviolet absorber.

[0009]

The water-absorbing polymer to be used in the invention is not particularly limited as long as it is a polymer having an action of absorbing water. Examples thereof include those obtained by stabilizing a hydrated gel derived from carrageenan, gelatin, agar, tragacanth gum, viscose, methyl cellulose, ethyl cellulose, hydroxyethyl cellulose, carboxymethyl cellulose, polyvinyl alcohol or the like by adding a polyvalent metal salt.

[0010]

Further, examples thereof include acrylic acid or methacrylic acid (hereinafter abbreviated as "(meth)acrylic acid"), sodium (meth)acrylate, a salt of ammonium or the like; (meth)acrylamide; a crosslinked compound of a homopolymer of N-substituted (meth)acrylamide, 2-(meth)acryloyl ethane sulfonic acid or a salt thereof, styrene sulfonic acid or a salt thereof, 2-hydroxy(meth)acrylate, vinyl pyrrolidone, a vinyl methyl ether, polyethyleneoxide(meth)acrylate or the like or a copolymer using two or more of these monomers; a crosslinked compound of a saponified vinyl acetate-methyl acrylate copolymer, a saponified vinyl acetate-maleic acid

copolymer, a half ester or half amide thereof, a saponified isobutylene-maleic anhydride copolymer, a half ester or half amide thereof or the like;

[0011]

a hydrolysate of a saponified styrene-sodium maleic anhydride copolymer, a half ester or half amide thereof, a starch-acrylic acid graft polymer, a polysaccharide- acrylic acid graft polymer, or a starch-acrylonitrile graft polymer and the like. As a method of forming the crosslinked compound, a method in which the above monomer or a monomer mixture is mixed with a polyfunctional vinyl monomer or a crosslinking agent having at least two functional groups other than a vinyl group such as an epoxy group in its molecule and polymerization is carried out by a known method, whereby a polymer with an appropriate elasticity is prepared can be exemplified. Further, after a homopolymer or a copolymer is obtained, a crosslinking agent is allowed to react with it, whereby a polymer with an appropriate elasticity can be prepared.

[0012]

As the polyfunctional vinyl monomer to be used here, for example, N-N'-methylenebisacrylamide, ethylene glycol diacrylate, ethylene glycol dimethacrylate, polyethylene glycol diacrylate, polyethylene glycol dimethacrylate, trimethylolpropane triacrylate and the like can be exemplified. As the crosslinking agent having functional groups other than

a vinyl group, for example, crosslinking agents of a glycidyl ether-type, an isocyanate-type, a maleimide-type and the like can be exemplified. As the glycidyl ether-type, an ethylene glycol diglycidyl ether, a polyethylene glycol diglycidyl ether, a glycerol diglycidyl ether, a glycerol triglycidyl ether, a triglycidyl isocyanurate and the like; as the isocyanate-type, methylenebis(4-phenyl diisocyanate), 2,6-tridene diphenyl diisocyanate, isophorone diisocyanate, hexamethylene diisocyanate, xyldene diisocyanate and the like; as the maleimide-type, N,N'-1,4-phenylenediamine dimaleimide, N,N'-1,2-phenylenediamine dimaleimide, N,N'-hexamethylenediamine dimaleimide, N,N'-tetramethylenediamine dimaleimide and the like can be exemplified. However, it is not limited to these. Further, as long as the hydrophilicity is not significantly inhibited, a copolymer of the above hydrophilic monomer with a hydrophobic monomer such as styrene (meth)acrylic acid ester can be used. However, a polymer composed of one or more types of hydrophilic monomers is preferred, and in particular, one obtained by crosslinking a sodium acrylate polymer with a crosslinking agent is preferred. Incidentally, as the crosslinking agent for the sodium acrylate polymer to be used at this time, an ethylene glycol diglycidyl ether is preferred, and the used amount thereof is preferably in the range of 3 to 7% by weight based on the sodium acrylate polymer.

[0013]

The water-absorbing polymer to be used in the invention is preferably one having a liquid absorption amount of 2 or more. When the liquid absorption amount is less than 2, a sufficient effect of reducing stickiness cannot last long. Incidentally, the liquid absorption amount can be obtained by the following measurement method.

Measurement method of liquid absorption amount: After 1.0 g of a polymer is sufficiently swollen in an excessive amount of physiological saline, the polymer is left at room temperature for 30 minutes. Then, the gel portion is obtained by being filtered through a filter paper and the weight thereof is measured. The amount (g) of the physiological saline per 1 g of polymer is defined as a liquid absorption amount. Further, the particle diameter and shape of the water-absorbing polymer are not particularly limited, however, one with a spherical shape and an average particle diameter at a dry state of 50 μ or less is preferred.

[0014]

The amount of the water-absorbing polymer contained in the emulsion cosmetic of the invention is in the range of 0.1 to 10% by weight, however, it is particularly preferably in the range of 2 to 8% by weight.

[0015]

The dimethylpolysiloxane to be used in the invention is

nonvolatile and in a liquid form and is represented by the above formula (1). The blending amount thereof is in the range of 1 to 20% by weight, however, particularly preferably, it is blended at 5 to 15% by weight.

[0016]

The cosmetic of the invention is a water-in-oil type emulsion, therefore, an emulsifying agent is used. The emulsifying agent to be used in the invention is not particularly limited, however, examples thereof include a polyoxyalkylene modified polysiloxane represented by the following general formula (2):

[0017]

[Chemical 3]

(2)

[0018]

[wherein Rs may be the same or different and respectively represent a methyl group or a phenyl group, R¹s may be the same or different and respectively represent a methyl group, a group R²(OC₃H₆)_b(OC₂H₄)_aO(CH₂)_p- (R² represents a hydrogen atom or an alkyl group having 1 to 12 carbon atoms, p represents a number of 1 to 5, a and b represent an average value and a number of 0 to 35, respectively) or a phenyl group, m and n represent an average value and m represents a number of 1 to 200 and n represents a number of 0 to 50], a polyglycerol condensed ricinolein acid ester (it is preferred that 20 to 70% of the

hydroxyl groups of the polyglycerol are esterified) represented by the following general formula (3):

[0019]

[Chemical 4]

(3)

[wherein R³s may be the same or different and at least one of them is a condensed ricinoleyl group represented by the following formula (4):

[0020]

[Chemical 5]

(4)

[0021]

(wherein r represents a number of 3 to 6) and the rest thereof is a hydrogen atom, and q represents a number of 2 to 8], a glycerine fatty acid ester, a sorbitan fatty acid ester, a polyoxyethylene sorbitan fatty acid ester, a polyethylene glycol fatty acid ester, a polyoxyethylene alkyl ether, a polyoxyethylene alkylphenyl ether, a polyoxyethylene hydrogenated castor oil derivative, an alkyl glyceryl ether and the like. These can be used alone or in combination of two or more types. The blending amount thereof is preferably in the range of 0.5 to 5% by weight.

[0022]

In the emulsion cosmetic of the invention, by further blending a powder subjected to a hydrophobization treatment,

the effect of reducing stickiness can be enhanced. The hydrophobized powder is one obtained by subjecting one or more types of powders such as talc, kaolin, zinc oxide, titanium dioxide, mica and sericite to a hydrophobization treatment. Examples of the agent for the treatment to be used here include a metal soap, a lipophilic surfactant, a silicone oil, a lipophilic polymer and the like, and a silicone oil is preferred among them. As the silicone oil, dimethylpolysiloxane, methylphenylpolysiloxane, methylhydrogenpolysiloxane and the like are preferred.

[0023]

The hydrophobization treatment of the powder is carried out in accordance with a standard method. For example, in the case of a silicone oil treatment, it is preferred that the treatment is carried out by using a silicone oil at 1.0 to 5.0% by weight based on the powder. To be more specific, it is preferred that the treatment is carried out by spraying a 10% silicone oil/methylene chloride solution onto a powder in a proportion of 10 to 20% by weight, and subjecting it to a calcination treatment at 100°C for 2 hours. Further, the particle diameter and shape of the hydrophobized powder to be used in the invention are not particularly limited, however, one with an average particle diameter of 0.05 to 50 μ and a plate-like structure is preferred.

[0024]

In the emulsion cosmetic of the invention, a general oil agent for cosmetic other than the above dimethylpolysiloxane (1) may be blended. The general oil agent is not particularly limited as long as it is generally used in a cosmetic. Examples thereof include plant oils such as avocado oil, camellia oil, macadamia nut oil, olive oil and jojoba oil; fatty acids such as oleic acid and isostearic acid; alcohols such as hexadecyl alcohol and olein alcohol; esters such as cetyl 2-ethylhexanoate, 2-ethylhexyl palmitate, 2-octyldodecyl myristate, neopentyl glycol di-2-ethylhexanoate, glycerol tri-2-ethylhexanoate, 2-octyldodecyl oleate, isopropyl myristate, glycerol triisostearate, glycerol tri-2-ethylhexanoate, 2-octyldodecyl oleate, isopropyl myristate, glycerol triisostearate, 2-ethylhexanoic acid diglyceride and mono-2-ethylhexanoic glyceryl diparamethoxy cinnamate; liquid hydrocarbon oils such as liquid paraffin, squalene and squalane and the like. These general oil agents for cosmetic can be used alone or in combination of two or more types. The oil agent is blended in the emulsion cosmetic of the invention at 0.1 to 20% by weight, and particularly preferably at 0.5 to 10% by weight.

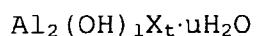
[0025]

Further, water can be blended in an arbitrary amount, however, in order to provide a good usability, that is, less oily feeling or sticky feeling, and to improve spreadability,

it is preferably blended at 10% by weight or more, particularly 30% by weight or more of the total amount including other water-soluble solvents. The other water-soluble solvents as used herein mean lower alcohols or polyols such as ethanol, glycerol, sorbitol, propylene glycol and 1,3-butylene glycol. When a water-absorbing polymer with a large particle diameter of 30 µm or more is used, it is preferred that the ratio of the water-soluble solvents is set high and the ratio of water is set low.

[0026]

In the emulsion cosmetic of the invention, an antiperspirant substance, a bactericidal agent, an astringent agent, a fragrance and the like can be blended within the range that does not impair the effect of the invention. As the antiperspirant substance, any substance can be used as long as it is a substance conventionally considered to have an antiperspirant action, and for example, an astringent salt of aluminum or zirconium such as an aluminum halide, an aluminum hydroxyhalide, a zirconyl oxyhalide or a zirconyl hydroxyhalide, or an astringent complex thereof can be used alone or as an admixture thereof. Among them, an astringent salt of aluminum is preferred, and typical examples thereof include aluminum chloride and an aluminum hydroxyhalide represented by the general formula:



(wherein X represents a chloride atom, a bromide atom or iodine atom, l and t respectively represent a number of 1 to 5, l+t is 6 and u represents a number of 1 to 6), and particularly preferred is aluminum hydroxychloride [Al₂(OH)₁Cl_t·uH₂O]. In the case where the antiperspirant substance is blended, the blending amount thereof is in the range of 1 to 50% by weight, particularly preferably in the range of 3 to 40% by weight in the raw material liquid composition of a spray cosmetic.

[0027]

Further, as the bactericidal agent, triclosan, trichlorocarbanilide and the like can be exemplified. The emulsion cosmetic of the invention can be applied to the skin by mixing the above ingredients, however, it can be formulated into a spray-type cosmetic. In the case where it is used as a spray-type cosmetic, an appropriate propellant is added to the emulsion cosmetic composition of the invention, which is packed in an airtight container provided with an aerosol valve. The propellant is not particularly limited as long as it is a liquified propellant which is a gaseous substance at room temperature and atmospheric pressure and is not miscible with the solid ingredients in the emulsion cosmetic composition of the invention. Examples thereof include hydrocarbons such as propane and butane; halogenated hydrocarbons such as dichlorofluoromethane,

1,2-dichloro-1,1,2,2-tetrafluoroethane and

trichloromonofluoromethane, and mixture thereof. As for the added amount of the propellant, the propellant is preferably added in such a manner that the ratio of the emulsion cosmetic composition of the invention becomes 2 to 50% by weight of the total amount after the addition of the propellant.

[0028]

On the other hand, by further adding an ultraviolet absorber to the above emulsion cosmetic, the ultraviolet absorber does not flow off by sweating or the like, whereby a cosmetic in which an ultraviolet protection effect lasts long can be prepared. As the ultraviolet absorber to be used here, octyl methoxycinnamate (manufactured by Givaudan Corporation, Parsol MCX SA), titanium oxide, zinc oxide and the above-mentioned hydrophobized powder, 4-tert-butyl-4'-methoxy-dibenzoylmethane (manufactured by Givaudan Corporation, Parsol 1789) and the like can be exemplified. The production method thereof may be carried out in accordance with a standard method.

[0029]

[Effect of the Invention]

The emulsion cosmetic of the invention does not give a frictional feeling upon application, reduces an uncomfortable feeling caused by sweating, and such an effect lasts long. In addition, by incorporating further an ultraviolet absorber therein, a cosmetic in which an ultraviolet protection effect

lasts long can be provided.

[0030]

[Examples]

Hereinafter, the present invention will be described in more detail with reference to Examples, however, the invention is not limited to these.

Example 1

An emulsion cosmetic having the following composition is produced by mixing in accordance with a standard method.

[0031]

Ingredient	(% by weight)
Dimethylpolysiloxane ^{*1}	10
Water-absorbing polymer ^{*2}	5
Volatile silicone ^{*3}	30
Polyether modified silicone ^{*4}	3
Glycerol	10
1,3-butylene glycol	5
Fragrance	Small amount
Purified water	Balance
Total	100

[0032]

*1: a compound wherein in the formula (1), x is 8

*2: sodium polyacrylate (average particle diameter: 5 µ, liquid absorption amount: about 10) which was made water-insoluble by being crosslinked with a crosslinking agent (ethyleneglycol diglycidyl ether)

(Production method) A liquid is prepared as follows. A solution obtained by neutralizing 255 g of a 80% aqueous

solution of acrylic acid with 280 g of a 30% aqueous solution of sodium hydroxide and a solution obtained by dissolving 10.2 g of diethyleneglycol diglycidyl ether (Denacol EX-810, manufactured by Nagase Chemicals, Ltd.) and 0.8 g of potassium persulfate in 20 g of water are added to a liquid obtained by dispersing 10 g of sucrose monostearate (Ryoto sugar ester S-570 (manufactured by Mitsubishi-Kasei Food Corporation)) in 1 kg of cyclohexane and dispersed using a homomixer. On the other hand, as B liquid, 1 kg of cyclohexane is fed in a 5-L reaction vessel provided with a reflux condenser tube, a thermometer, a nitrogen-introducing tube, a stirrer bar and a dropping funnel. After oxygen is removed by passing nitrogen through this reaction vessel, the temperature is raised to 80 ± 5°C, and A liquid is added dropwise to B liquid via the dropping funnel while stirring. After completion of the dropwise addition, further the mixture is matured for 2 hours. Then, azeotropic dehydration is carried out, further 1.5 L of cyclohexane is distilled off and the mixture is left to cool. The resulting polymer beads are dried at 90°C under reduced pressure, whereby 280 g of the objective polymer is obtained.

[0033]

*3: a cyclic polysiloxane represented by the following formula
(5)

[Chemical 6]

(5)

(manufactured by Toray Dow Corning Silicone Co., SH244)

[0034]

*4: a dimethylsiloxane-methyl(polyoxyethylene) copolymer

(manufactured by Shin-Etsu Chemical Co., Ltd., KF945A)

[0035]

The emulsion cosmetic having the above composition did not give a frictional feeling of the water-absorbing polymer upon applying or cause clamminess (a sweaty state), and an effect of reducing stickiness, shine and makeup coming off caused by sweating lasted long. Incidentally, a product in which the dimethylpolysiloxane (1) was removed from the emulsion cosmetic having the above composition was prepared as Comparative example 1, and a product in which the water-absorbing polymer was removed from the emulsion cosmetic having the above composition was prepared as Comparative example 2, and then, comparative evaluation regarding stickiness was carried out together with the emulsion cosmetic of the present invention. The results are shown in Table 1.

[0036]

[Table 1]

Sensory evaluation for stickiness (33°C, 70% RH)

Sample	Right after application	After 5 min	After 10 min	After 20 min
Example 1	○○	○○	○○	○
Comparative example 1 ⁵	○	○	△	X
Comparative example 2 ⁶	○	△	X	X

*5: a product in which the dimethylpolysiloxane was removed

from Example 1.

*6: a product in which the water-absorbing polymer was removed from Example 1.

[0037]

(Evaluation method) After washing the face, a specific amount (500 µl) of a sample is applied to the face. Then, a test subject enters in a temperature-controlled room (33°C, 70% RH), and a sensory evaluation over time regarding stickiness is carried out in accordance with the following criteria.

OO: 8 or more among 10 test subjects answered that there is no stickiness.

O: Less than 8 among 10 test subjects answered that there is no stickiness.

△: Less than 6 among 10 test subjects answered that there is no stickiness.

X: Less than 4 among 10 test subjects answered that there is no stickiness.

[0038]

Example 2

An emulsion cosmetic having the following composition is produced by mixing in accordance with a standard method.

Ingredient	(% by weight)
Dimethylpolysiloxane ⁷	5
Sweat-absorbing polymer ⁸	3
Volatile silicone ⁹	10
Polyether modified silicone ¹⁰	1
Ultraviolet absorber ¹¹	3
Glycerol	2
Ethanol	2
Fragrance	Small amount
Purified water	Balance
Total	100

[0039]

*7: a compound wherein in the formula (1), x is 100

*8: sodium polyacrylate (average particle diameter: 10 μ , liquid absorption amount: about 8) which was made water-insoluble by being crosslinked with a crosslinking agent (ethyleneglycol diglycidyl ether)

(Production method) 300 g of a 1250 ppm crosslinking agent (based on acrylic acid) (a commercially available fine powder of sodium polyacrylate) and 2 kg of cyclohexane are fed in a 5-L reaction vessel provided with a reflux condenser tube, a thermometer, a stirrer bar and a dropping funnel. Then, to this mixture, a solution obtained by dissolving 12 g of diethyleneglycol diglycidyl ether (Denacol EX-810, manufactured by Nagase Chemicals, Ltd.) in 255 g of water is added dropwise while stirring. After completion of the dropwise addition, the temperature is raised to $80 \pm 5^\circ\text{C}$, and a crosslinking reaction is carried out for 3 hours. Then, azeotropic dehydration is carried out, further 1.5 L of

cyclohexane is distilled off and the mixture is left to cool.

The resulting polymer beads are dried at 90°C under reduced pressure, whereby 300 g of the objective polymer is obtained.

*9: a compound wherein in the general formula (5), y is 5
(manufactured by Toray Dow Corning Silicone Co., SH245)

*10: dimethylsiloxane-methyl(polyoxyethylene)siloxane copolymer (manufactured by Toray Dow Corning Silicone Co., SH3775C)

*11: octyl methoxycinnamate (manufactured by Givaudan Corporation, Parsol MCX SA)

[0040]

The emulsion cosmetic having the above composition did not give a frictional feeling of the water-absorbing polymer upon applying or cause clamminess, and showed less elution of ultraviolet absorber thereby to persist an ultraviolet protection effect. The ultraviolet protection effect was obtained based on the amount of remaining ultraviolet absorber. The results are shown in Table 2.

[0041]

[Table 2]

Amount of remaining ultraviolet absorber (33°C, 70% RH)

Sample	Right after application	After 10 min	After 20 min	After 30 min
Example 2	100	92	86	81
Comparative example 3*12	100	90	72	65
Comparative example 4*13	100	88	63	60

*12: a product in which the dimethylpolysiloxane was removed

from Example 2.

*13: a product in which the water-absorbing polymer was removed from Example 2.

[0042]

(Evaluation method) After washing the face, a specific amount (100 µl) of a sample is applied to the forehead. Then, a test subject enters in a temperature-controlled room (33°C, 70% RH), and an oil component on the skin is extracted over time with acetone/ ether (1/1). The absorbance thereof is measured to determine the ultraviolet absorber, and the relative value thereof is calculated assuming that the value right after application is 100.

[0043]

Example 3

An emulsion cosmetic having the following composition is prepared in accordance with a standard method.

Ingredient	(% by weight)
Dimethylpolysiloxane ^{*14}	10.0
Water-absorbing polymer ^{*15}	5.0
Volatile silicone ^{*16}	40.0
Emulsifying agent ^{*17}	0.5
Squalane	3.0
Silicone-coated titanium oxide ^{*18}	3.0
Ultraviolet absorber ^{*19}	3.0
1,3-butylene glycol	2.0
Glycerol	5.0
Ethanol	10.0
Fragrance	0.1
Purified water	18.4
Total	100

*14: a compound wherein in the formula (1), x is 10
*15: the same one as in Example 1
*16: the same one as in Example 1
*17: α -monoisostearyl glyceryl ether
*18: titanium oxide (average particle diameter: 3 μ) which was subjected to a surface coating treatment using a water-in-silicone oil type emulsion cosmetic (KF-9650cs) in a proportion of 3% based on titanium oxide
*19: the same one as in Example 2

[0044]

This emulsion cosmetic caused less stickiness, shine and makeup coming off due to sweating, and these effects lasted long. On the other hand, outflow of the ultraviolet absorber powder due to sweating and the deviation were less, and an ultraviolet protection effect was also favorable.